28875

15.2410

S/180/61/000/004/013/020
E071/E180

AUTHORS: Meyerson, G.A., Dergunova, V.S., Epel'baum, V.A., and Gurevich, M.A. (Moscow)

TITLE: An investigation of some hard alloys of the Boron—Silicon—Carbon system

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo. no. 4, 1961, 90-94

TEXT: The above system has, as yet, been insufficiently studied. For this reason the authors investigated three groups of alloys of the following types: alloys close to the zone of solid solutions based on SiC, alloys based on B_4C, and alloys of the central part of the ternary B-Si-C system. In the latter, the points were chosen so as to overlap the zones in which previous investigators assumed the possibility of the existence of a ternary compound of the type $B_xSi_yC_z$. Specimens of the alloys were obtained by hot pressing powder mixtures of the elements at 2000-2100 °C (no details of the preparation are given). Spectral

Card 1/4

An investigation of some hard alloys....

analysis of the specimens indicated that the sum of admixtures (Fe, Mg, Al, Ca) did not exceed 0.1%. Porosity did not exceed 2-5%, and density was uniform throughout the whole volume of the specimens. A prolonged high temperature annealing (50-100° below pressing temperature) brought the alloys to the equilibrium state with an increase in the grain size, but did not cause any changes in the chemical composition, or any increase in the porosity. The specimens were submitted to metallographic and X-ray analysis and microhardness measurements. The following conclusions are drawn: 1) A phase exists in the B-Si-C system with a melting temperature above 2100 °C and a very high hardness (about 7000 kg/mm^2 and above), noticeably exceeding the microhardness of boron carbide (5000 kg/mm^2). 2) In specimens produced and treated in the described way, metallographic and X-ray analysis did not show the presence of any new phases in noticeable quantities, only solid solutions based on B_4C, SiC and Si (the latter at an insufficient carbon content). The X-ray analysis indicated that the solubility of silicon (or siliconcarbide) is small in boron carbide (less than 2% if calculated on Si), but metallographic investigation suggested

An investigation of some hard alloys..

the presence of an apparently single phase up to 10-12% silicon. This can be explained by the separation of submicroscopically dispersed SiC particles on cooling. The microhardness of such grains, based on B_4C, is 7000 kg/mm^2 and, in some cases reaches 8000 kg/mm^2. 3) Grains of solid solutions based on SiC have a microhardness of 5000-5200 kg/mm^2 instead of the 3500 of pure SiC. 4) The hardness of B-Si-C alloys changed little up to a temperature of 700-800 °C. For alloys based on B_4C, the hardness of 6000-7000 kg/mm^2 at 20° dropped to 3000 kg/mm^2 at 800-900 °C and, for alloys based on SiC, from 4000-5000 kg/mm^2 to 1500 kg/mm^2. During these measurements, the formation of cracks was observed around the indentation in a number of cases, indicating that the actual hardness values could be higher. The work was carried out in the Kafedra redkikh metallov i poroshkovoy metallurgii (Department of Rare Metals and Powder Metallurgy) of the Institut tsvetnykh metallov imeni M.I. Kalinina (Institute of Non-ferrous Metals imeni M.I. Kalinin), in cooperation with the Fiziko-Khimicheskiy institut imeni L.Ya. Karpova (Physico-Chemical Institute imeni L.Ya. Karpov).

Card 3/4

28875
S/180/61/000/004/013/020
An investigation of some hard alloys ... E071/E180

There are 1 figure, 1 table and 4 references: 3 Soviet-bloc and 1 English. The English language reference reads as follows:

Ref.1: F. Ton. The quest for hard materials. Industrial and Engineering Chemistry. Industrial edition, 1938, 30, 232-242.

SUBMITTED: November 21, 1960

Card 4/4

S/192/61/002/001/006/006
B107/B218

AUTHORS: Epel'baum, V. A., Sevast'yanov, N. G., Ormont, B. F., and Gurevich, M. A.

TITLE: A possible existence of volume-centered phases of boron carbide and silicon oxycarbide

PERIODICAL: Zhurnal strukturnoy khimii, v. 2, no. 1, 1961, 65

TEXT: It has been stated in Ref. 1 (V. A. Epel'baum, M. A. Gurevich, B. F. Ormont, Zh. neorg. khimii, 1, 2149 (1956)) that lines of a cubic, volume-centered phase occur in preparations of boron carbide, which conclusion was drawn from the reflections of the X-ray picture. This volume-centered phase was called beta phase; it has a period of identity of 3.16 kX. The composition of this phase was not determined. The intensity of the reflections was very high for all samples, for some even higher than that of the reflections of the alpha phase. This led to the assumption that the beta phase belongs to the boron carbon system. The presence of impurities could, however, hardly be excluded, though every attempt was made to remove them (treatment with hydrofluoric and other acids). The authors of Ref 2 (V. A. Epel'baum, M. A.

Card 1/4

A possible existence ...

Gurevich, B. F. Ormont, Zh. neorg. khimii, 4, 1938, (1959)) found that lines of this volume-centered phase occur in preparations with strongly differing content of boron and carbon. Thus, it was not possible to establish the position of the phase in the phase diagram of boron-carbon. This fact led to doubts about the composition of the phase, and thus to further experiments (see below). The authors of Ref. 2 had pointed out that spectrum analysis did not show any considerable content of impurities. In 1958, Samsonov had published papers (Ref. 3: G. V. Samsonov, Zh. fiz. khimii, 32, 2424 (1958); Ref. 4: G. V. Samsonov, Ukr. khim. zh., 24, no. 6, 659 (1958)), in which he stated already in 1952/1953 he had detected this phase in boron carbide, together with Zhuravlev, and found it to be silicon oxycarbide. Despite Samsonov's statement, this fact needs a further proof, especially since silicon oxycarbide is of practical, and the detection of Samsonov and Zhuravlev is of theoretical importance. Hitherto, only cubic silicon carbide and silicon oxycarbide have been known, both only with face-centered cell of the sphalerite type. A system of lines in the X-ray picture, however, corresponds to this structure which completely differs from that of the cubic, volume-centered cell. Thus, Samsonov claims to have detected a new phase of silicon oxycarbide with cubic, volume-centered cell and a period of identity

Card 2/4

of 3.16 kX. The authors of the present paper point out that a cubic, volume-centered cell with a period of identity of 3.16 kX leads to certain crystallochemical difficulties, both with boron carbide and silicon oxycarbide. This difficulty lies in the fact that the interatomic distance $d = a\sqrt{3/2} = 2.85$ kX is larger than the sum of the radii of the individual atoms. In order to explain this fact, it would be necessary to assume the existence of structural centers into which atom impurities enter, or one must assume the existence of complex structural centers with a corresponding system of reflections. The authors therefore arrived at the following conclusion: The system of reflections corresponding to a cubic, volume-centered cell of boron carbide is parasitic; it is formed by the occurrence of an additional phase in the preparation. By their careful experiments and control, the authors found that this admixture is introduced by the tungsten wire which is used for filling the sample to be studied radiographically into the capillary. For the first moment, it was striking that thereby such quantities of impurities could enter into the preparation that their lines are more intense than that of the main mass (Ref. 1). If, however, the great difference of the scattering power of tungsten as compared to boron, silicon, and carbon is considered, then the above effect, which was also observed by

the authors of Ref. 2, becomes probable. One may assume that the cubic, volume-centered phase of silicon oxycarbide, which was detected by Samsonov and Zhuravlev (Ref. 3) in 1952, has the same origin. [Abstracter's note: This is a full translation from the original.] There are 4 Soviet-bloc references.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova (Scientific Research Institute of Physical Chemistry imeni L. Ya. Karpov)

SUBMITTED: January 21, 1960

S/032/62/028/012/021/023
B104/B186

AUTHORS: Fomin, V. G., and Gurevich, M. A.

TITLE: Accessory to the ИКСО (RKSO) standard X-ray camera for the detection of structural defects in germanium

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 12, 1962, 1526

TEXT: The device described here makes use of the anomalous X-ray absorption to detect structural defects, above all dislocations, in germanium. The device (Fig.), made of brass, is fastened to the sample holder of the goniometer head of the X-ray camera so that the crystal can be adjusted in proper relation to the X-ray beam. The crystal (1) is a single-crystal plate (0.7-2 mm thick) with a diameter of 3-20 mm. It is fastened to the base plane of the body (2) by the screw (3) so that the axis of the sample holder (4) of the goniometer lies in the plane of the base of (2). The body (5) can be detached with respect to the base plane of (2). The X-ray film is in a badge (6) of black paper. A germanium single crystal plate (of 15 mm diameter, 3 mm thick), oriented with an accuracy of 1-2° in the (111) plane, was ground with abrasive powders of various grades. In this way,

Card 1/2

Accessory to the IKCO (RKSO)...

the deviation from the (III) plane was reduced to 10'. The sample was then polished for 20 sec at 48°C with СП-4 (SP-4) etchant. Before this chemical polishing the plate was 0.9 mm thick. There is 1 figure.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Design and Planning Scientific Research Institute of the Rare Metals Industry)

Fig. Schematic diagram of the accessory.

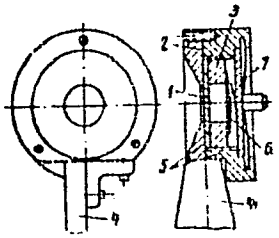


Схема приспособления

GUREVICH, M. A.

Equipment for sand drying in a flow of hot gases. Lit. proizv. no.10:43 O '62. (MIRA 15:10)

(Drying apparatus—Foundry sand)

GUREVICH, M.A.

Calorimetry of vanadium carbides. Zhur. neorg. khim. 8 no.12: 2645-2650 D '63.

Tensimetry of vanadium carbides. Ibid.:2651-2658 (MIRA 17:9)

L 12464-65 EWG(j)/EWT(m)/EPF(c)/EPR/EWP(t)/EWP(b) Pt-4/Pe-4 AS(mp)-2/
RAEM(e)/RAEM(c)/ESD(gs)/ESD(t) JD/JG
ACCESSION NR: AP4048431 S/0181/64/006/011/3467/3468

AUTHOR: Shestakova, N. A.; Gurevich, M. A.; Marina, L. I.; Nashel'sky, A. Ya.

TITLE: Micrographic investigation of gallium-phosphide crystals

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3467-3468

TOPIC TAGS: compound semiconductor, gallium phosphide crystal, single crystal growth, crystal etching, crystal structure defect, crystal dislocation, twin crystal

ABSTRACT: The microstructure of gallium-phosphide crystals has been studied using a new etching formulation to reveal structural differences between the crystals grown by different methods (from stoichiometric or nonstoichiometric melts and from vapor phase). The practical importance of gallium phosphide was emphasized as one of the most promising $A^{III}B^{V}$-compound semiconductors. The etching formulation contained trivalent iron ion as an oxidant and hydrochloric acid as the solvent for gallium oxide. Micrographs of the etched acicular or

Card 1/2

L 12464-65
ACCESSION NR: AP4048431

lamellar crystals revealed not only dislocations, but also other structure defects such as bands or spirals of growth. Dislocation etch pits were described as triangular pyramids uniformly distributed in most lamellar crystals and clustered around the boundary between two differently oriented regions in acicular crystals. Two differently oriented regions were also observed in lamellar crystals. These observations led to the conclusion that some of the crystals grown by either method were twins or contained differently oriented inclusions. Orig. art. has: 2 figures.

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy i proektny*y institut redkometallicheskoy promy*shlennosti, Moscow (State Design and Planning Scientific Research Institute of the Rare Metals Industry)

SUBMITTED: 15May64 ENCL: 00 SUB CODE: SS

NO REF SOV: 001 OTHER: 004 ATD PRESS: 3126

Card 2/2

FOMIN, V.G.; SARANTSEV, V.F.; SHCHEGOL'KOVA, L.A.; GUREVICH, M.A.

Scanning camera for studying dislocations. Prib. i tekh. eksp. 9 no.2:176-177 Mr-Ap'64. (MIRA 17:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

ACCESSION NR: AP4024989 S/0070/64/009/002/0219/0226

AUTHORS: Fomin, V. G.; Mil'vidskiy, M. G.; Grishina, S. P.; Belyatskaya, N. S.; Gurevich, M. A.

TITLE: Some structural features of highly doped single crystals of silicon

SOURCE: Kristallografiya, v. 9, no. 2, 1964, 219-226

TOPIC TAGS: silicon, single crystal growth, crystal structure, metallographic study, x ray study, crystal pulling, impurity content

ABSTRACT: Metallographic and x-ray studies have shown several distributional patterns of impurities in the body of a silicon rod, including cellular substructure. An increase in impurity concentration substantially affects the structure of the crystal and, to a considerable degree, determines growth characteristics. All else being the same, increased impurity concentration in a melt and in the solid rod apparently increases periodic fluctuations in growth rate during pulling and produces associated periodic irregularities in impurity distribution. These irregularities appear in longitudinal sections and in spiral growth rings in transverse sections. Such highly doped crystals show a greater tendency to grow

Card 1/2

ACCESSION NR: AP4024989

along definite crystal faces. At a certain impurity concentration, crystals begin to show a distinct knobby surface, then a cellular substructure. The general pattern of development of the cellular substructure is the same as in highly doped crystals of Ge. No dislocations were detected in the investigated single crystals. This and the presence of cellular structure are anomalous features when coexisting in the same crystals. Actually, the edge of a cell may be considered a dislocation, and the disorientation angle may give an approximate evaluation of impurity desegregation along this zone. Block structure is responsible for this cellular development. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy i proyektny*y institut redkometallicheskoy prom*shlennosti (State Scientific Research and Planning Institute of the Rare-Metal Industry)

SUBMITTED: 10May63 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: SS NO REF SOV: 004 OTHER: 010

Card 2/2

ACCESSION NR: AP4024990 S/0070/64/009/002/0227/0230

AUTHORS: Fomin, V. G.; Malyutina, G. L.; Gurevich, M. A.; Novikov, A. G.

TITLE: Distribution of gold in germanium single crystals

SOURCE: Kristallografiya, v. 9, no. 2, 1964, 227-230

TOPIC TAGS: germanium, gold, antimony, gold alloyed germanium, antimony alloyed germanium, alloy distribution in crystals, spectral germanium analysis, x-ray germanium analysis, GUR-3 x-ray goniometer, URS-501 x-ray apparatus, lattice structure, dislocation density, dispersion, alloy separation, cooling effect

ABSTRACT: The distribution of small quantities of gold in germanium single crystals was studied with the use of a double-crystal spectrometer (Bragg-Bragg orientation) and a special attachment mounted on the GUR-3 goniometer of a URS-501 x-ray apparatus. The n-type germanium served as a crystal-monochromator, while the samples studied were cut from different parts of a germanium ingot alloyed with gold to 10^{15} cm^{-3} and with antimony to 10^{14} cm^{-3}. The concentration of the uncontrolled acceptor-admixtures did not exceed 10^{13} cm^{-3}. Data obtained by the x-ray and metallographic (etching) analyses were compared after the dislocation

Card 1/2

ACCESSION NR: AP4024990

density in the areas studied spectrometrically was determined. It was at first established that defects observed in the Ge crystalline lattice were caused by the presence of Au and Sb. Further study showed that gold rather than antimony atoms were responsible for the presence of these defects. An explanation is offered of two possible causes of the phenomenon: 1) the presence of dispersed eutectic inclusions of Au; 2) dispersion separation of Au from the solid solution during cooling. The authors conclude that gold atoms in a germanium monocrystal are distributed between the undisturbed matrix and dislocations. Orig. art. has: 3 figures.

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy proyektny*y institut redkometallicheskoy prom*shlennosti (State Scientific Research Institute of Rare Metals Industry)

SUBMITTED: 16May63 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: ML, PH NO REF SOV: 004 OTHER: 006

Card 2/2

L 11268-65 EWT(m)/EWP(t)/EWP(b) EJP(c)/AS(mp)-2/ASD(a)-5/RAEM(a)/ASD(m)-3/SSD/
RAEM(c)/AFWL/ESD(gs)/ESD(t) JD

ACCESSION NR: AP4046052 S/0070/64/009/005/0752/0754

AUTHORS: Shestakova, N. A.; Gurevich, M. A.; Ivleva, V. S. 6

TITLE: Metallographic investigation of structural defects (dislocations) of indium antimonide single crystals 4

SOURCE: Kristallografiya, v. 9, no. 5, 1964, 752-754

TOPIC TAGS: indium antimonide, single crystal, dislocation density, stoichiometry, crystal growth, semiconductor material, structural dislocation, metallography

ABSTRACT: A polished section was prepared, coinciding with the (111) plane accurate to better than 3°, with the orientation of the single crystals determined by the Laue method. This was followed by mechanical polishing of the investigated surface and etching in a CP-4A acid mixture ($CH_3COOH:HF:HNO_3$ = 3:3:5) for 15--20 seconds at room temperature. This disclosed not only the dislocation etch

Card 1/3

pits but also the small-angle boundaries, mosaic blocks, twins, grain boundaries, and second-phase inclusions. The dislocation density on individual single-crystal samples of InSb, obtained by the Czochralski and by the zone-melting method, ranges from 2.0 x 10^2--1.1 x 10^3 to 1 x 10^4--1.0 x 10^6 cm^{-2}, respectively. The dislocations in crystals obtained by zone melting are highly uneven along the section of the ingot, and the dislocation density is one order of magnitude higher than in crystals obtained by the Czochralski method. Another feature of the former crystals is the presence of small-angle boundaries of different widths and lengths. It was also found that the structure of single-crystal ingots drawn from a melt containing an excess of one of the components differs greatly from the structure of ingots obtained from melts of stoichiometric composition. This is possibly due to the radical change in the crystallization front. It is stated in conclusion that the use of metallographic procedures for the investigation of semiconductor single crystals discloses many important structural features con-

L 11268-65

ACCESSION NR: AP4046052

nected with their growth conditions. Orig. art. has: 3 figures.

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy institut redkometallicheskoy promy*shlennosti (State Scientific Research and Design Institute of the Rare Metal Industry)

SUBMITTED: 04Jul63 ENCL: 00

SUB CODE: SS NR REF SOV: 000 OTHER: 004

Card 3/3

TSYGAN, V.T.; CHISTYAKOVA, M.F., BYKOV, P.N.; GUREVICH, M.A.; SHCHEGOL'KOVA, L.A.

Thermostatic devices for X-ray cameras. Zav. lab. 30 no.5:630 '64. (MIRA 17:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

L 36293-65
ACCESSION NR: AP5007530 UR/0292/65/000/003/0003/0005

AUTHOR: Lidorenko, N. S. (Doctor of technical sciences, Professor); Moiseyev, I. N. (Candidate of technical sciences); Voronkov, G. Ya. (Candidate of technical sciences); Gurevich, M. A. (Engineer); Vorob'yeva, A. O. (Engineer)

TITLE: Electrochemical transducers for acoustic-signal reception and small-displacement measurements

SOURCE: Elektrotekhnika, no. 3, 1965, 3-5

TOPIC TAGS: electrochemistry, acoustic transducer, acoustics

Abstract: The transducer with two-sided diaphragm (Fig. 1a) is a plastic vessel comprising two chambers connected by a channel. The platinum main cathode, cylindrical in shape, is located in the channel, and the grid electrodes, in the anode and cathode chambers. The transducer with one-sided diaphragm is also a two-chamber plastic vessel (Fig. 1b). This chamber arrangement sharply reduces vibration effects with no loss in sensitivity. Experimentally determined chacteristics of the acoustic transducers are plotted in Figure 2. The dependence of the transducer output current on the acoustic signal frequency for various values of sound pressure is shown in Figure 2a. The frequency range in which the sensitivity of the trans-

Card 1/6

L 36293-65
ACCESSION NR: AP5007530

ducer to sound pressure is constant increases with increased sound pressure. A drop in sensitivity with an increase in the sound pressure is evident in Figure 2b. Figure 2c shows the dependence of output current on sound pressure. The principal characteristics of the acoustic transducers are as follows: 1) frequency range of linear output (depends on sound pressure), 0.1--8 cps; 2) range of measurable sound pressures, 0.5--25 newton/m^2; 3) output current, 10--100 μamp; 4) weight, including the electrolyte, 50 g. The electrochemical transducer of small mechanical displacements is a plastic vessel with two concentrically arranged chambers (Fig. 1c). It has a one-sided diaphragm arrangement to reduce vibration effects. The dependence of output current on the amplitude of diaphragm displacements at a constant frequency is shown in Fig. 3a; the dependence of output current on the mechanical signal frequency at a constant amplitude, in Fig. 3b. The mechanical-displacement transducer has the following basic characteristics: 1) operational frequency range (depends on the magnitude of diaphragm displacement), 0.1--5 cps; 2) range of measurable displacements, 0.1--10 μ; 3) output current, 5--6 μamp; 4) weight, approx 3 g. Orig. art. has: 5 graphs, 4 figures.

Card 2/6

LIDOR[illegible]KO, [illegible].S., doktor tekhn. nauk, prof.; [illegible], I.I., kand. tekhn. nauk; VORONKOV, G.Ya., kand. tekhn. nauk; GURLEVICH, M.A., inzh.

Electrochemical transducers for oscillation and weight measurements. Elektrotekhnika 36 no.4:24-25 Ap '65. (MIRA 18:5)

L 39687-65 EWP(e)/EWT(m)/EPF(c)/EPF(n)-2/EWG(m)/EWA(d)/T/EPR/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) Pf-4/Ps-4/Pu-4 IJP(c) JD/JG/WB/AT/WH

ACCESSION NR: AP5008274 S/0226/65/000/003/0062/0068

AUTHOR: Meyerson, G. A.; Kinarisov, S. S.; Gurevich, M. A.; Teng, Feng-hsiang

TITLE: Conditions of synthesis and some properties of sintered alloys of the pseudobinary B_4C-B_4Si system

SOURCE: Poroshkovaya metallurgiya, no. 3, 1965, 62-68

TOPIC TAGS: boron carbide alloy, boron silicide containing alloy, alloy synthesis, alloy property, alloy structure, alloy oxidation resistance

ABSTRACT: A series of B_4C-B_4Si alloys containing from 0 to 100 mol% B_4Si have been synthesized by the powder-metallurgy method and investigated to determine the optimum conditions of synthesis which would ensure a homogeneous structure and maximum density of the alloys while preserving a given composition. The components were found to form a continuous series of solid solutions. Alloys were obtained by hot compacting stoichiometric charge B_4C-rich alloys at 1900—2000C and B_4Si-rich alloys at 1800—1700C. The hot compacted specimens had

Card 1/3

a homogeneous structure and a uniform density. With short-time compacting at lower temperatures, the majority of the specimens had a fine-grained two-phase structure; one phase (white) had a microhardness of 1500 dan/mm^2, the second (gray), 4000 dan/mm^2. Alloys compacted at higher temperatures and annealed alloys had a single-phase structure. Prolonged annealing of the alloys at 1900—1800C (alloys containing more that 70 mol% B_4Si, at 1350C) has no effect on the composition or density of the alloys, but produced a grain growth and considerable twinning. Depending on the composition, the microhardness of annealed alloys changed gradually with a maximum of 7000 dan/mm^2 for an alloy containing 60 mol% B_4C. Oxidation tests for 50 hr in air at 1000C showed the oxidation to follow a parabolic rate with a gradually decreasing oxidation rate and formation of a dense, strongly adhering vitrious film of a boro-silicate type. The alloy containing 70 mol% B_4Si had the lowest oxidation rate of 0.02 mg/cm^2·hr, i.e., 0.5 mm/year. Orig. art. has: 6 figures and 1 table. [HS]

L 39687-65
ACCESSION NR: AP5008274

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute for Steel and Alloys)

SUBMITTED: 03Dec63 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 004 OTHER: 005 ATD PRESS: 3229

Card 3/3

L 08553-67 EWP(j)/EWT(m) RM/WW/JW/GD

ACC NR: AT6032000 SOURCE CODE: UR/0000/66/000/000/0241/0251

AUTHOR: Agafonova, F. A. (Leningrad); Gurevich, M. A. (Leningrad); Tarasova, Ye. F. (Leningrad)

ORG: none

TITLE: Self ignition and the induction period of liquid fuel droplets

SOURCE: Teplo- i massoperenos, t. 4: Teplo- i massoobmen pri khimicheskikh prevrashcheniyakh v tekhnologii (Heat and mass transfer, v. 4: Heat and mass transfer during chemical transformations). Minsk, Nauka i tekhnika, 1966, 241-251

TOPIC TAGS: air fuel combustion, hydrocarbon fuel, liquid fuel, ignition, ~~induction period~~, octane, cetane, FUEL IGNITION

ABSTRACT: The ignition of hexane, n-octane, and cetane droplets (0.0014—0.002 m in diameter) was studied by suspending the droplets from a quartz filament in a vertical tube through which preheated air was passed at velocities of 1.3—4.9 m/sec. The ignition process was studied by motion picture photography and induction time vs air temperature plots were obtained (see Figs. 1 and 2). A theoretical analysis yielded the following formula for the dimensionless induction time:

Card 1/4

L 08553-67

ACC NR: AT6032000

5

$$F_0 = \int_{\theta_{01}}^{\theta_{02}} \frac{d\Theta_0}{\frac{3}{2}\frac{\rho_0}{\rho_1}\frac{c_p}{c_1}\mathrm{Nu}\left(|\Theta_0'| - \frac{1}{qn_{k1}}\right)\ln\eta_1},$$

where θ_0 is the reduced temperature during the induction period; $\theta'_0 = 1/qn_{k1}$; q, heat of reaction; n_{k1}, oxygen concentration; ρ_1, density of liquid; ρ_0, density of gas; c_p, heat capacity of gas; c_1, heat capacity of liquid; $\eta_1 = 1/1-n_{p0}$; and n_{p0} is the concentration of oxygen in vapor. The results of numerical integration for n-octane and cetane are shown in Figures 3 and 4, respectively. It is concluded that the studied fuels cannot ignite at the wet bulb temperature but they always ignite at a lower temperature. The induction time changes with the temperature of the medium faster than the temperature gradient across the droplet-medium interphase. The reduced film model used, which allows for the kinetic resistance, permits the approximate calculation of the ignition limits, the surface temperature of the droplet prior to ignition, and the induction period. Bao Ke-da and I. M. Sulima participated in the work. Orig. art. has: 7 figures, 24 formulas, and 2 tables. [WA No. 68]

Card 2/4

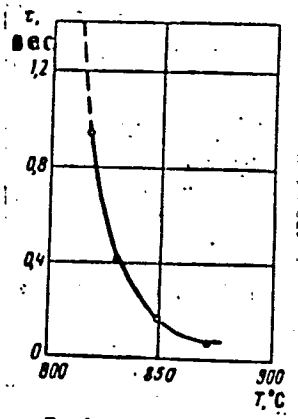


Fig. 1. Induction time of n-octane (0.0015—0.0018 m in diameter) vs air temperature at 4 m/sec (τ is induction time)

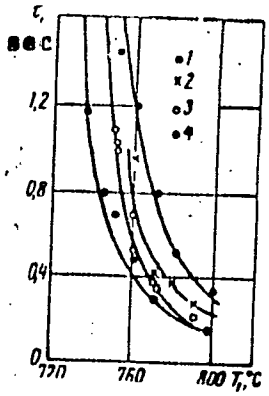


Fig. 2. Induction time of cetane vs air temperature (0.0018—0.002 m in diameter), at flow velocities

1 - 3.8 m/sec; 2 - 3.1 m/sec; 3 - 2.6 m/sec; 4 - 1.3 m/sec.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000617420008-3"

ACC NR: AT6032000

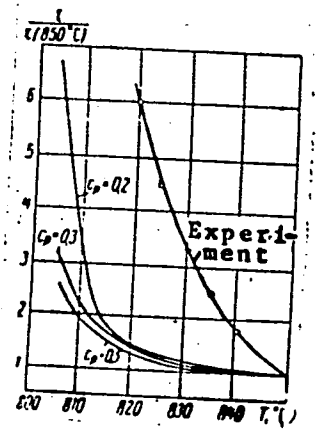


Fig. 3. Numerical integration for octane

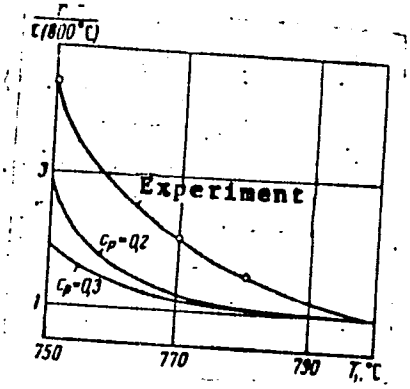


Fig. 4. Numerical integration for cetane

SUB CODE: 21/ SUBM DATE: 25Apr66/ ORIG REF: 003/ OTH REF: 001

Card 4/4

ACC NR: AP7000000 (A) SOURCE CODE: UR/0363/67/003/001/0175/0176

AUTHOR: Aigina, N. R.; Gurevich, M. A.; Domenkov, N. M.; Zhukova, L. A.; Maslov, V. N.; Sakharov, B. A.

ORG: Giredmet

TITLE: Electron diffraction study of epitaxial indium phosphide layers

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 3, no. 1, 1967, 175-176

TOPIC TAGS: indium compound, phosphide, epitaxial growing, electron diffraction analysis

ABSTRACT: Epitaxial layers of indium phosphide were grown by using the sandwich method (small gaps between the source and substrate). The chemical transport was accomplished in a stream of hydrogen, water vapor acting as the carrier reagent:

$$4InP + 2H_2O \rightleftharpoons 2In_2O + 2H_2 + P_4.$$

Electron diffraction patterns were obtained from InP films 10 to 120 μ thick grown on GaAs at 680, 780 and 830°. An essential factor affecting the perfection of the crystal structure of the InP layers was found to be a close maintenance of the orientation of the {111} B substrate surface. It is shown that, strictly speaking, the growth of the InP layers was nonepitaxial. This is because during the first stages

UDC: 546.682'181.1+539.27

Card 1/2

ACC NR: AP7006210

of deposition the layer grew epitaxially (i. e., reproduced the crystallographic orientation of the substrate completely), but later gradually changed its orientation, coming closer to the [111] direction of growth. A pronounced twinning indirectly confirms this conclusion. The measurements were made at the Institute of Semiconductors, AN SSSR (Institut poluprovodnikov AN SSSR), under the supervision of V. K. Subashiyev.

SUB CODE: 07,20/ SUBM DATE: 24Jan66/ ORIG REF: 004/ OTH REF: 005

Card 2/2

GODLEVSKIY, N.A., inzh.; GUREVICH, M.B., inzh.

Setting norms for operations in the assembly of technological equipment. Mont. i spets. rab. v stroi. 23 no.9:25-26 S '61. (MIRA 14:9)

1. TSentral'noye normativno-issledovatel'skoye byuro Ministerstva stroitel'stva RSFSR.
(Machinery--Erecting work)

PITIRIMOV, V.P., inzh.; GUREVICH, M.B., inzh.

Work required to assemble vertical technological equipment. Mont. i spets. rab. v stroi. 23 no.12:11-14 D '61. (MIRA 15:2)

1. Ministerstvo stroitel'stva, TSentral'noye normativno-issledovatel'skoye byuro.
(Machinery--Erecting work)

GUREVICH, M.B., arkhitektor; YEL'KIN, G.A., arkhitektor; FILENKOV, Yu.P., arkhitektor; ZIL'BERMAN, G.P., arkhitektor; KRYUKOV, G.V., arkhitektor; PANCHENKO, N.D., arkhitektor; VOLOSHINOV, G.I., arkhitektor

Regardless of passengers convenience and economics of constructions. Transp. stroi. 15 no.3:57 Mr '65. (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tekhnicheskoy estetiki (for Gurevich, Yel'kin, Filenkov). 2. Novosibirskproyekt (for Zil'berman). 3. MVKhTU (for Kryukov). 4. Moskovskiy gosudarstvennyy proyektnoizyskatel'skiy i nauchno-issledovatel'skiy institut, transporta Ministerstva transportnogo stroitel'stva SSSR (for Panchenko, Voloshinov).

GURSVICH, Moisey Davydovich; GURSVICH, Mark Davydovich; VRUBLSVSKIY, A.V. inzhener-mayor, redaktor; KAZAKOVA, V.Ya., tekhnicheskiy redaktor.

[Electron-tube instruments] Elektrovakuumnye pribory. Moskva, Voen.izd-vo Ministerstva obor. SSSR, 1955. 418 p.(MLRA 8:11)
(Electron tubes)

GUREVICH, Moisey Davydovich; GUREVICH, Mark Davydovich; VRUBLEVSKIY, A.V., inzh.-podpolkovnik, red.; KONOVALOVA, Ye.K., tekhn.red.

[Electron-tube devices] Elektrovakuumnye pribory. Izd.2., perer. i dop. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 458 p. (MIRA 13:12)

(Electron tubes)

25(2)
9(2)

S/146/60/003/01/014/016
D002/D006

AUTHOR: Gurevich, M.D., Senior Engineer

TITLE: The Manufacturing Technology of the Spiral Cathodes of High-Power Oscillator Tubes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, 1960, Vol 3, Nr 1, pp 105-107 (USSR)

ABSTRACT: The article gives a detailed description of a device for coiling spiral tungsten cathodes for high-power oscillators described previously in "Priborostroyeniye", Nr 6, 1959, pp 54-60. The device is a table type "TN-1" lathe adapted for this purpose by the Chair of Radio Engineering of LITMO. It is illustrated by photograph and electric circuit diagram. Details on the winding process are included. Mechanic N.N. Sgibnev, took part in the construction of the device. The article was recommended by the Kafedra radiotekhniki (Chair of Radio Engineering). There are 2 diagrams and 1 photograph and 1 Soviet reference.

Card 1/2

S/146/60/003/01/014/016
D002/D006

The Manufacturing Technology of the Spiral Cathodes of High-Power Oscillator Tubes

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: November 25, 1959

Card 2/2

GUREVICH, Moisey Davydovich; GUREVICH, Mark Davydovich; VEUBLEVSKIY, A.V., inzhener-mayor, redaktor; KAZAKOVA, V. Ye., tekhnicheskiy redaktor.

[Electronic appratus] Elektrovakuumnye pribory. Moskva, Voennoe izd-vo Ministerstva oborony Soiuza SSR, 1955. 418 p.(MLRA 8:12)
(Electronic appratus and appliances)

GUREVICH, M.D.,; NOVIKOV, L.S.

Universal ultrasonic therapeutic apparatus(UZU-1) Med. prom. 10 no.1:38-41 Ja-Mr '56, (MLRA 9:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo instrumentariya i oborudovaniya.
(MEDICAL INSTRUMENTS AND APPARATUS)
(ULTRASONIC WAVES--THERAPEUTIC USE)

GUREVICH, M.D.

Electromedical (physiotherapeutic) apparatus; manual for physiotherapeutic technicians. N.M.Liventsev. Reviewed by M.D.Gurevich. Med.prom. 10 no.2:46-47 Ap-Je '56. (MLRA 9:8)
(LIVENTSEV, N.M.)
(THERAPEUTICS, PHYSIOLOGICAL--TEXT BOOKS)

GUREVICH, M. [Hurevych, M.], doktor med. nauk

Conquest of the unheard. Znan. ta pratsia no.3:8-9 Mr '59.
(MIRA 12:10)

(Ultrasonics)

GUREVICH, M.D.

Apparatus for diagnosing tumors through the use of ultrasound.
Med. prom. 13 no.2:52-60 F '59. (MIRA 12:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo instrumentariya i oborudovaniya.
(TUMORS) (ULTRASONIC WAVES)
(MEDICAL INSTRUMENTS AND APPARATUS)

PHASE I BOOK EXPLOITATION SOV/5037

Gurevich, Moisey Davydovich, and Mark Davydovich Gurevich

Elektrovakuumnyye pribory (Electronic Vacuum Devices) 2d ed., rev. and enl. Moscow, Voyenizdat M-va obor. SSSR, 1960. 458 p. No. of copies printed not given.

Ed.: Vrublevskiy, A.V., Engineer, Lieutenant Colonel; Tech. Ed.: Konovalova, Ye.K.

PURPOSE: This book is intended for officers who desire a deeper knowledge of electronic vacuum devices than is offered in elementary courses in radio engineering. The book is written for readers acquainted with the fundamentals of physics and mathematics on the secondary-school level.

COVERAGE: The authors describe the operation and structure of the majority of electronic vacuum devices used in radio-engineering equipment. Considerable attention is paid to the devices designed for microwave operations and pulse techniques. In the present (second) edition of the book, modern devices are described, terminology is defined more accurately, and a new chapter, "Semiconductor electronic devices" is included. No personalities are mentioned. There are 15 references, all Soviet (including 1 translation).

Card 1/11

S/194/61/000/012/080/097
D273/D301

AUTHORS: Gurevich, M. D., Klynkachev, V. A., Sobakin, M. A. and Yakovlev, S. I.

TITLE: Ultrasonic diagnostic apparatus for the study of soft tissues УЗД-4 (UZD-4)

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1961, 22, abstract 12E122. ("Novosti med. tekhn." 1960, no. 6, 3-17)

TEXT: The possibilities of ultrasonic diagnostics are examined. The diagnostic apparatus UZD-4 designed in the ВНИИМИиО (VNIIMIiO) is described. It is noted that one of the most important parameters of the instrument - the maximum depth action - is almost entirely determined by the ultrasonic damping coefficient in tissues and to a lesser degree depends on the power of the transmitter, the sensitivity of the receiver and other factors. The UZD-4 works at frequencies of 2.5; 5; 10 and 15 Mc/s, a launching frequency of 1000 c/s, and a pulse length of 3 microseconds. The depth of sound-

Card 1/2

ing at 2.5 Mc/s reaches 90 mm and the destructive mode forms at a depth of 3.5 mm and at an azimuth of 5 mm. For 15 Mc/s, these parameters are respectively equal to 20, 1.2 and 5 mm. The power consumption is 1.4 KVA. The instrument has 2 ЭЛТ (ELT): The first tube with a linear afterglow and brightness modulation is designed to obtain a two-dimensional representation of organ sections along the scanning beam; the second tube with an oscillographic reamer is used with a fixed position indicator. A detailed description is given of the generator circuit of the UZD-4 and constructional details of the instrument. A sketch is given of the scanning position indicator consisting of a hermetically sealed body with a tube of determined length, in which a piezoelectric converter has a back and forth movement. As indicator of the position of the piezoelement, a linear potentiometer is used, whose potential is amplified and applied to the deflection system of the ELT. 5 figures. 1 table. / Abstractor's note: Complete translation. /

Card 2/2

GUREVICH, M. D.

Ultrasonic therapeutic apparatus. Nov. med. tekh. no.3:23-28 '61.
(MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya.

(ULTRASONIC WAVES—THERAPEUTIC USE)

GUREVICH, M.D.; BELETSKIY, Ye.L.; DEMIDOV, G.Ye.; KOZLOV, A.P.

A stationary ultrasonic therapeutic device. Nov.med. tekh. no.4:10-19'61. (MIRA 16:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya.
(ULTRASONIC WAVES—THERAPEUTIC USE)
(MEDICAL INSTRUMENTS AND APPARATUS)

KABATOV, Yu.F.; PEREL'MUTR, A.S.; MISHIN, L.N.; GUREVICH, M.D.

Medical instruments of the German Federal Republic and Holland. (MIRA 14:5)
Med. prom. 15 no.3:54-58 Mr '61.
(MEDICAL INSTRUMENTS AND APPARATUS)

GUREVICH, M.D.; BELETSKIY, Ye.L.

Ultrasonic therapeutic portable apparatus UTP-1. Med.prom. 15 no.8: 57-60 Ag '61. (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya.
(ULTRASONIC WAVES--THERAPEUTIC USE)

GUREVICH, M.D.; SVADKOVSKAYA, N.F.; SOBAKIN, M.A. (Moskva)

Ultrasonics in medicine. Sov. zdrav. 20 no.8:19-23 '61. (MIRA 15:1)

(ULTRASONIC WAVES--THERAPEUTIC USE)

39334
S/146/62/005/004/001/013
D295/D308

9.3120

AUTHORS: Gurevich, M.D. and Zilitinkevich, S.I.

TITLE: Tests of high-power carburized cathodes under conditions of repeated gaseous flashes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, v. 5, no. 4, 1962, 3-10

TEXT: The last decade has witnessed the successful introduction of cathodes of carburized thoriated tungsten in high-power sealed oscillator tubes. To assess the possibility of extending their use to highpower dismountable tubes, samples of such cathodes 2 x 60 mm^2 have been studied in sealed water-cooled standard-design diodes connected to ionization manometers and operated at 500 V, 1.5 - 2 A, with 46 - 48 A heater current; the more frequent sporadic release of sorbed gas as occurs in dismountable systems is simulated by breaking air-filled bulbs 4.5 cm^3, situated in side branches of the diode envelope. The breaking of each little bulb causes a flash followed by a drastic current decrease (90 - 95% loss of

Card 1/2

Tests of high-power ...

emissivity). Normal emission, together with the initial vacuum conditions, is restored automatically after 2½ to 9 hours, the restoring time depending on the pressure increase that causes the flash and the state of degassing of the apparatus. Similar experiments have been carried out in diodes connected to exhaust units. Emissivity can be restored, in this case, in 15 min. by means of thermal activation of the cathode. The restoring of the initial vacuum is slower and, after an intense gas flash (> 10^{-3} mm Hg) or after repeated flashes, requires that the whole diode be subject to thermal treatment. There are 3 figures and 3 tables.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: March 21, 1962

S/146/62/005/005/001/016
D201/D308

AUTHORS: Zilitinkevich, S. I. and Gurevich, M. D.

TITLE: Performance of carbide power cathodes in reduced vacuo

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye, v. 5, no. 5, 1962, 3-7

TEXT: The authors present the results of experiments carried out in 1961 at the Kafedra radiotekhniki Leningradskogo institua tochnoy mekhaniki i optiki (Department of Radio Engineering of the Leningrad Institute of Precision Mechanics and Optics) with the view to determining the lifetime of carbide power cathodes operating under the conditions of reduced vacuum. A special experimental type of power diode was used for this purpose. The pressure was regulated by means of a specially designed valve - a gas generator ГУ-50 (GU-50), joined to the diode together with a manometer valve ЛМ-2 (LM-2). The gas pressure in the gas generator was regulated by activated carbon, acting as gas absorber. The carbon was heated by the filament of the GU-50 valve without oxide coating. The pressure

Card 1/ 3

Performance of carbide ...

was thus regulated by means of adjusting the GU-50 filament current and the mass-spectrography of gases evolved by the carbon showed that their content was near to that of air. The experiments have shown the following: 1. In a power diode, operating for 500 to 800 hours at 500 V and a vacuum of 10^{-5} to 2.10^{-5} mm Hg, the cathode produces a normal emission current. 2. The emission current is not substantially affected if the vacuum is reduced down to 5.10^{-5} to 8.10^{-5} mm Hg during the first 200 to 300 hours. 3. With the pressure of 10^{-5} to 2.10^{-5} mm Hg for the first 200 to 300 hours of operation, the cathode becomes sensitive to the pressure increasing over 2.10^{-5} mm Hg. The emission current decreases by 15 to 20% or more at pressures between 2.10^{-5} and 5.10^{-5} mm Hg. 4. When the pressure is again reduced to 10^{-5} to 2.10^{-5} mm Hg, the emission current becomes temporarily restituted to its original value. There are 4 figures and 2 tables of numerical results.

Performance of carbide ... S/146/62/005/005/001/016
D201/D308

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: January 31, 1962

Card 3/3

S/0248/64/000/002/0078/0081

ACCESSION NR: AP4012883

AUTHOR: Gurevich, M. D.; Tsurupa, D. I.

TITLE: Diagnostic application of ultrasonics

SOURCE: AMN SSSR. Vestnik, no. 2, 1964, 78-81 and insert between pages 80 and 81

TOPIC TAGS: ultrasonics, ultrasonic diagnostic device, UZD-4 ultrasonic diagnostic device, echographia, biosonar, diagnostic method, breast tumor, peripheral arterial disease, one-dimensional echographia, two-dimensional echographia

ABSTRACT: Pathological processes of soft organs and tissues can be investigated without contrasting substances by echographia. This method is based on reflection of an ultrasonic beam from different density boundaries and projection of the transmitted pulses on a cathode tube screen. In the more commonly used one-dimensional echographia the shape, size, and depth of pulses are produced by a stationary ultrasonic beam. In two-dimensional echographia an ultrasonic oscillator moves along a given trajectory and the reflected

Card 1/2

OTHER: 000

Card

ACC NR: AP6034941 (A) SOURCE CODE: UR/0146/66/009/005/0036/0037

AUTHOR: Gurevich, M. D.; Fedotov, G. A.

ORG: Leningrad Institute of Precision Mechanics and Optics (Leningradskiy institut tochnoy mekhaniki i optiki)

TITLE: Device for measuring vibration and small displacement

SOURCE: IVUZ. Priborostroyeniye, v. 9, no. 5, 1966, 36-37

TOPIC TAGS: mechanical vibration, vibration analysis, vibration measurement, electronic circuit

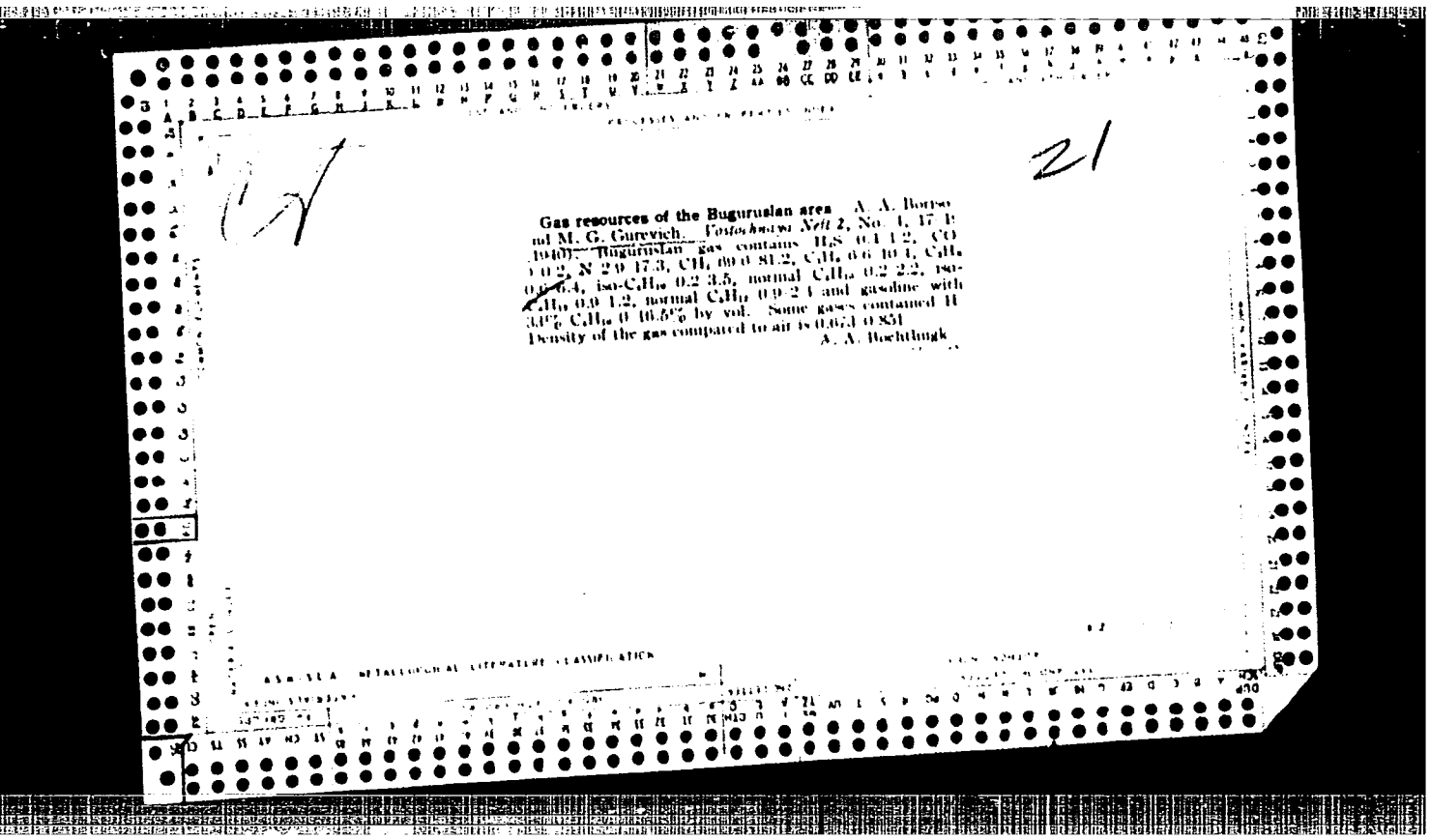
ABSTRACT: A portable device for measuring mechanical vibration with 0.05—1.5 mm amplitude and a 0—150 cps frequency range is described. The device includes a measuring unit with a sensor connected to it by a cable. A "mechanotron" (twin diodes with fixed anodes and a movable common cathode) is used as the sensor. The measuring unit has a bridge circuit diagonal to which is connected an M-24 miliammeter. The scale of this miliammeter is calibrated for direct reading of displacement (vibration amplitude). Displacement of the mechanotron cathode is linearly related to the current in the bridge diagonal. An oscilloscope can be connected to the bridge diagonal for analysis of vibration shape. Orig. art. has: 2 figures.

SUB CODE: 09/ SUBM DATE: 28Oct65/

Card 1/1 UDC: 531.71.531.14

GUREVICH, M.E., inzh.; ZHAK, L.B., inzh.

Economic efficiency of technological processes in forging.
Vest.mashinostr. 45 no.11:74-77 N '65. (MIRA 18:12)

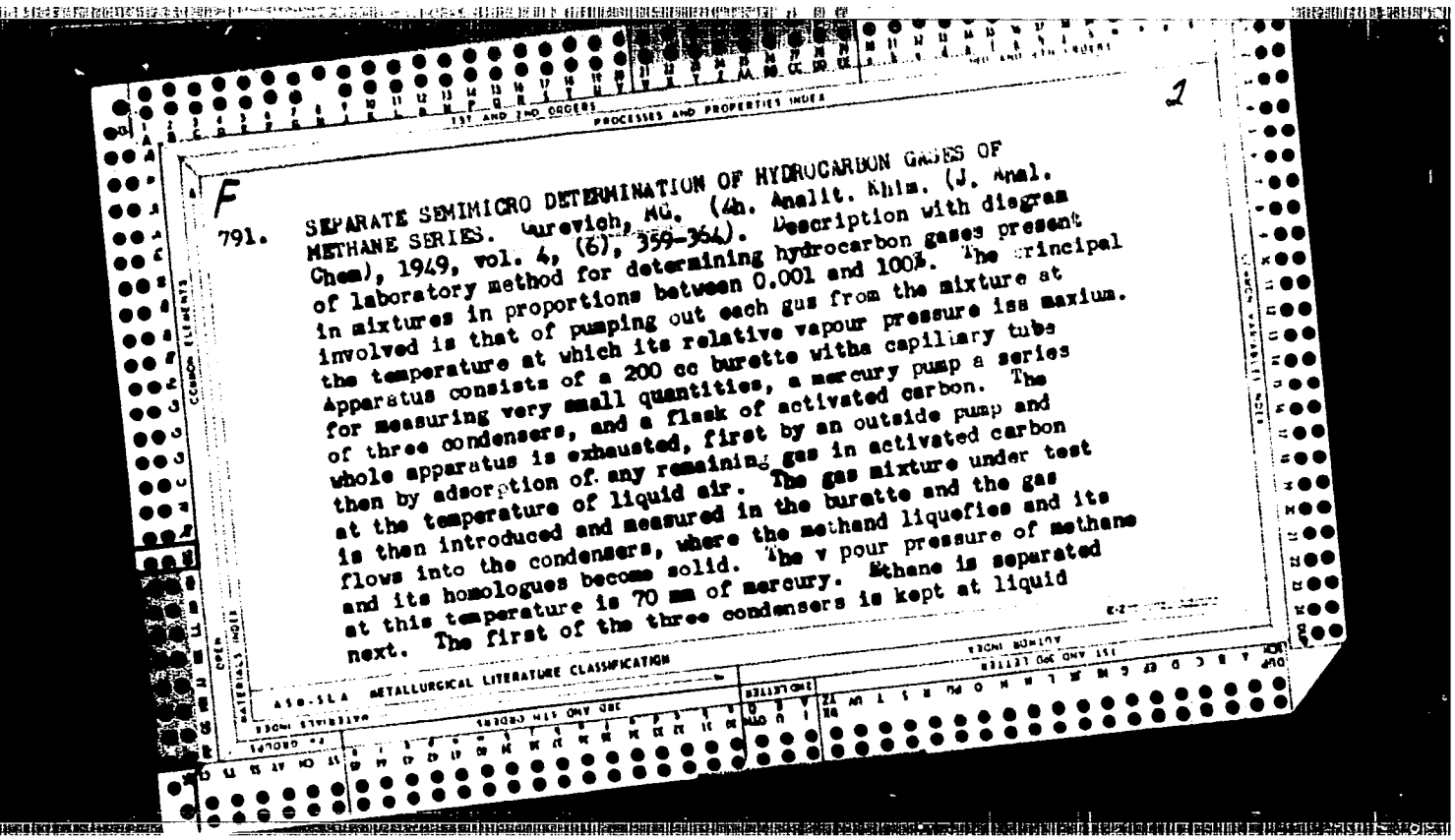


Gas resources of the Bugurusian area. A. A. Borisov and M. G. Gurevich. *Voprosy Neft*, No. 1, 17-19 (1940). Bugurusian gas contains H_2S 0.1-1.2, CO_2 0.0-0.2, N_2 2.0-17.3, CH_4 69.0-81.2, C_2H_6 0.6-10.1, C_3H_8 0.0-0.4, iso-C_4H_{10} 0.2-3.5, normal C_4H_{10} 0.2-2.2, iso-C_5H_{12} 0.0-1.2, normal C_5H_{12} 0.0-2.1 and gasoline with 3.0% C_6H_{14} 0-10.5% by vol. Some gases contained H. Density of the gas compared to air is 0.673-0.851.

A. A. Bochtlingk

GUREVICH, M. G. Mbr. Inst. Geological Sci. Acad. Sci.

"Discovery of Hydrogen in the Gases of Kuznetsk Basin Coal." Dok. AN, 52, No. 1, 1946.



F

791. SEPARATE SEMIMICRO DETERMINATION OF HYDROCARBON GASES OF METHANE SERIES. Gurevich, MG. (Zh. Analit. Khim. (J. Anal. Chem), 1949, vol. 4, (6), 359-364). Description with diagram of laboratory method for determining hydrocarbon gases present in mixtures in proportions between 0.001 and 100%. The principal involved is that of pumping out each gas from the mixture at the temperature at which its relative vapour pressure iss maxium. Apparatus consists of a 200 cc burette withs capillary tubs for measuring very small quantities, a mercury pump a series of three condensers, and a flask of activated carbon. The whole apparatus is exhausted, first by an outside pump and then by adsorption of any remaining gas in activated carbon at the temperature of liquid air. The gas mixture under test is then introduced and measured in the burette and the gas flows into the condensers, where the methand liquefies and its and its homologues become solid. The v pour pressure of methane at this temperature is 70 mm of mercury. Ethane is separated next. The first of the three condensers is kept at liquid

air temperatue while the other two thaw, so that all the gas condenses in the first. Temperature of this first condenser in the second condenser is then raised to -130 and the fraction coming off is condensed in the second condenser at liquid air temperature.. Temperature of the second condenser is then raised to -135 and the fraction coming off condensed in the third. Temperature of the third condenser is then raised to -145 and ethane is pumped off. Propane is separated next with successive temperatures of -120 ,-125 , and -130 in the three condenses, and butane with temperatures of 90 and 95 in the second and third condensers. Remaining homologues are first condensed in the third condenser and then evaporated off while temperature is raised to room temperature, The method is to be applicable to the semimicro- and macro- analysis of the combustible portion of natural gas derived from petroleum,coal and peat.

GUREVICH, M. G.

58/49T21

USSR/Chemistry - Carbon Dioxide Jun 49
Chemistry - Gases

"Instrument for Rapid Detection of CO_2 in Air," M. G. Gurevich, Ya. M. Kots, Inst of Geol Sci, Acad Sci USSR, 2 pp

"Zavod Lab" Vol XV, No 6

Describes the apparatus, based on the principle of absorption of CO_2 by asbestos treated with soda. Claims it is capable of detecting CO_2 concentrations as low as $2 \cdot 10^{-3}\%$ and can be used in all cases where CO_2 is not in the presence of other gases which can be absorbed by asbestos treated with soda.

58/49T21

GUREVICH, M. G.; FLORENSKIY, K. P.

Gases - Analysis

Review of A. A. Cherepennikov's book "Manual on the sampling and analysis of natural gases." Zhur. anal. khim. 8, No. 1, 1953.

9. **Monthly List of Russian Accessions**, Library of Congress, May 1953. Unclassified.

GUREVICH, M.G.; LAPRUN, K.I., tekhnicheskiy redaktor

[Builders of the Kama Hydroelectric Power Station]
Stroiteli kamskoi ges. Molotov, Molotovskoe knizhnoe izd-vo, 1956. 364 p. (MLRA 10:4)
(Kama Hydroelectric Power Station)

AUTHORS: Gurevich, M. G., Ovchinnikov, I. M. 20-118-4-40/61

TITLE: On Helium in the Natural Gas Jets of the Urup Copper-Pyrite Beds (O gelii v prirodnykh gazovykh struyakh Urupskogo medno-kolchedannogo mestorozhdeniya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 4, pp. 771-773 (USSR)

ABSTRACT: These gas jets in the ore regions of Kavkaz have never been investigated. The gas occurrence mentioned in the title was discovered in 1955 - 1956 together with compressed water in the boreholes. The above mentioned ore bed is in the upper part of the drainage area of the Urup river in the foothills of the main ridge of Kavkaz. 3 complexes of sedimentary and sedimentary-volcanogenic rocks take part in the geological structure 1: 1) the oldest middle-paleozoic, mostly green rocks which are to a great extent dislocated and only in small sections exposed by erosions; 2) a mass of red lower-Permian sediments, dislocated to a small extent, in a vast area; 3) almost horizontal, normally sedimented Jurassic rocks which are stratified in the middle part of the region with a distinct stratigraphic discordance on 1) and 2). The tectonics of the

Card 1/4

district is characterized by the different degree and character of the dislocations as well as by the existence of greater dislocations. 6 periods of geological development are indicated here. In the middle-Paleozoic volcanogenic rocks 2 anticlinals are developed: Urupskaya and Verkhne-Vlasinchikhinskaya. The ore body and the gas occurrence are bound to the southern wing of the Urupskaya anticlinal. The district is complicated from the hydrological standpoint. There is a number of water-bearing horizons: Chloride-sodium waters under pressure have a temperature up to 20°. This proves a considerable depth of their bedding and a relatively free circulation through the tectonically broken zones. The origin of the water is to a great extent connected with the magmatic and hydrothermal activity in the upper part of lower Carboniferous. The lower Jurassic rocks form a shield for the waters and gases of the metamorphic mass. Therefore they bubble up from the boreholes when contact of the Jurassic- and Devonian sediments is penetrated. Hence follows that neither the waters nor the gases are genetically connected with the lower Jurassic rocks. The gas jets are in connection with the mentioned waters and bubble up together with them from the boreholes. Table 1 shows the results of a total analysis of the

freely escaping gases and those solved in water. The gases of Urup are chemically to be counted among the hydrocarbon- and mixed nitrogen-hydrocarbon-gases. Carbonic acid either lacks completely or is present in very small quantities. Hydrogen sulfide is assumed to have been present in great quantities at the beginning, in the samples taken from sources flowing for longer time, however, hydrogen sulfide was detected only in quantities below 0,01%. The solved gases show approximately the same composition, except oxygen which might have been dragged from the air. Heavy hydrocarbons almost lack completely in freely liberated gases (table 2). The hydrocarbons are here connected with the metamorphism of the rocks, not with the oil formation processes. Table 3 shows the analysis of rare gases in the freely escaping gases. The helium content is high (0,4%). The distribution area of helium is perhaps greater here. The age of the gases with reference to helium and argon was determined as middle-Paleozoic which corresponds to the formation time of the chalcopyrite bed. These latter are assumed to be in connection with the hydrothermal activity and with the magnetic cycles of the Sudetskaya (Sudetic) phase of the Gertsinskaya (Hercynian) folding period which took place between lower- and middle-

20-118-4-40/61

On Helium in the Natural Gas Jets of the Urup Copper-Pyrite Beds

Carboniferous. A comparatively low argon content confirms the depth-origin of the Urup gases.
There are 3 tables.

PRESENTED: June 20, 1957, by D. I. Shcherbakov, Academician

SUBMITTED: June 15, 1957

AVAILABLE: Library of Congress

Card 4/4

AUTHORS: Gurevich, M. G., Ovchinnikov, I. M. 20-118-5-49/59

TITLE: A Short Description of Natural Waters in the Region of the Tyrnyauzskoye Ore Deposit (Kratkaya kharakteristika prirodnykh vod rayona Tyrnyauzskogo rudnogo mestorozhdeniya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 5, pp. 1021-1024 (USSR)

ABSTRACT: This ore deposit is located on the upper Baksan river in the depression area of the Tyrnyauz-Tau chain in the region of the El'brus mountain at an altitude of from 2000 to 3058 m. The ore deposit, being of a scarn - type is linked with a regional tectonic zone, which is represented by a narrow strip of metamorphosed and strongly dislocated Palaeozoic and Lower Jurassic rocks, which are wedged in between old crystalline slates in the shape of tectonic fragements. In the near vicinity of the El'brus aerated water springs are very frequent. The springs in the vicinity of the mentioned ore deposit are interesting in various aspects. The rock around the ore deposit hardly contains ground water down to great depths because they are drained by the Baksan river and several brooks to a deep level. Fissure water was only

Card 1/3

found to a considerable extent at the horizon 2312 m (from the zone of the central disruption). Later on from 5 to 6 wells of such water in the granite and the greatest water supply in drill holes in scarns of ore and marble were found. Gas escape has never before been observed here. The here discovered springs appertain to the bicarbonate-sodium or potassium type with a mineralization below 1 g/liter. Table 1 gives analyses of several fresh water springs, of water from the mines and of the mineral waters of the said district. The mineral water from the structural drill hole no. 104 (at a depth of 1200 m) is especially interesting from the chemical point of view. Within the range of from zero to 764,3 m neither water nor gas were met with. Between 764,3 and 834 m gas and mineral water appeared. Clay solution was ejected to a height of 0,5 m. The gas separated from the solution in form of numerous small bubbles, which burst on the surface. Gas separation and the ejection of the solution were irregular and occurred by jerks, as if pulsating. Up to 83,8% of Hydrogen were found in a gas sample. After 18 days this content dropped to 1%. The initially low content of CO_2(6,8%) later on increased to 95,55% and above. A sample of absolutely clear water was analyzed and

the results were compiled in table 2. The content of the following specific components is increased in the drill hole no. 104: CO_2, H_2S, Li, Fe, J, F, HBO_2 and H_2SiO_3. The mineralization is relatively high = 13,1 g/liter. The water is carbonic, containing chloride, hydrocarbonate and sodium, and contains an excessively high amount of lithium (280,8 mg/liter) which constitutes rare case. There are 2 tables, and 1 reference, 1 of which is Soviet.

ASSOCIATION: Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii Akademii nauk SSSR (Institute for the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry AS USSR)

PRESENTED: June 20, 1957, by D. I. Shcherbakov, Academician.

SUBMITTED: June 15, 1957.

GUREVICH, M.G.; KATS, G.V.; OVCHINNIKOV, I.M.; SAUKOV, A.A.

Materials on geochemical characteristics of natural gases associated with ore deposits of the Caucasus. Trudy IGEM no.46:83-91 '60.
(MIRA 14:1)

(Ore deposits) (Caucasus—Gas, Natural)

GUREVICH, M.G.; KRAVTSOV, S.S.; OVCHINNIKOV, I.M.; SURKOV, V.N.

Recent data on the concentration of some trace elements in natural gases and waters of the Northern Caucasus. Trudy IGEM no.46:92-97 '60. (MIRA 14:1)

(Caucasus, Northern—Mineral waters)
(Caucasus, Northern—Gas, Natural) (Trace elements)

S/580/61/000/000/008/016
A057/A126

1.3300

AUTHORS: Tishchenko, I.G.; Gurevich, M.G.

TITLE: Selective oxidation of 2-methyl-1,5-hexadiene-3-in and 3-methyl-2,6--heptadiene-4-in with peracetic acid

SOURCE: Yerofeyev, B.V. and Tishchenko, I.G., eds. Zhidkofaznoye okisleniye nepredel'nykh organicheskikh soyedineniy , Minsk, 1961, 85 - 96

TEXT: The effect of the structure of unsaturated hydrocarbons and the nature of the substituent on the oxidation with hydroperoxides was studied on two dienes which have two non-equivalent double bonds. Similar investigations were carried out by N.M. Malenok and S.D. Kul'kin. The present experiments demonstrated that in both dienes - 2-methyl-1,5-hexadiene-3-in and 3-methyl-2,6-heptadiene--4-in - by oxidation with acetyl hydroperoxide (peracetic acid), the double bond with the methyl group at the carbon atom is selectively oxidized, and two unsaturated monoxides of the vinylacetylene series are obtained: 2-methyl-1,2-epoxyhexene-5-in-3 and 3-methyl-2,3-epoxyheptene-6-in-4. The other double bond, as well as the triple bond were not oxidized, not even with a great excess of peracetic acid. The structure of the obtained oxides was proved by ultraviolet ab-

Card 1/3

Selective oxidation of ....

sorption spectra. Since divinylacetylene hydrocarbons with non-symmetric structure can be easily manufactured by dehydration of vinylethynylcarbinols (according to I.N. Nazarov et al.) selective oxidation of the former could be a suitable method for the production of monoxides of the vinylacetylene series. Unsaturated aminoalcohols were prepared with a 45% yield from the obtained oxides by reaction with diethylamine. According to investigations by K.A. Krasuskiy and by F.Ya. Perveyev et al. the aminoalcohols were identified as 1-dimethylamino-2-methyl-3--hydroxyhexene-5-in-3 and 2-dimethylamino-3-methyl-3-hydroxypentene-6-in-4. These aminoalcohols are colorless liquids with an unpleasant odor, and polymerize after storage in air to glassy, reddish substances. The saturated aminoalcohols 1-dimethylamino-2-methyl-2-hydroxyhexane and 2-dimethylamino-3-methyl-3-hydroxyheptane were obtained by catalytic hydrogenation of the unsaturated aminoalcohols. Infrared spectra were taken of the last mentioned saturated aminoalcohol, and of the unsaturated monoxide 3-methyl-2,3-epoxyheptene-6-in-4 in the range 900 - 3,700 cm^{-1} on a UR-10 spectrophotometer. The spectrum of the alcohol showed absorption bands at 3,680 cm^{-1} (hydroxyl group), 1,040 cm^{-1} (C-N group), 2,876 and 2,960 cm^{-1} (symmetric and antisymmetric oscillation of CH_3 group), 2,920 cm^{-1} (antisymmetric oscillation of CH_2 group), 2,876 cm^{-1} (possibly superposed symmetric oscillations of CH_2- and CH_3-group), and 1,266 cm^{-1} (apparently effected by deformation-oscil-

Card 2/3

Selective oxidation of ....

S/580/61/000/000/008/016
A057/A126

lations of the alcohol hydroxyl). The spectrum of the unsaturated monoxide showed, beside other bands, the absorption bands characteristic of hydroxyl groups and the epoxy ring, thus proving that the hydrogen addition occurs to the double and triple bonds, but also to the oxide ring, resulting in the formation of an alcohol and a saturated oxide, which probably could not be separated by the simple fractional distillation. There are 4 figures.

Card 3/3

S/058/62/000/003/047/092
A061/A101

AUTHORS: Gurevich, M. G., Solov'yev, K. N.

TITLE: The luminescence of rare-earth phthalocyanines

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1962, 43, abstract 3V343 ("Dokl. AN BSSR", 1961, v. 5, no. 7, 291 - 294)

TEXT: The spectral luminescence characteristics of complex compounds synthesized by the authors from rare-earth elements and phthalocyanine were examined with respect to the problem of intramolecular transfer of the excitation energy from the organic constituent of the molecule to the rare-earth ion. Absorption and luminescence spectra of alcoholic Eu, Gd, and Yb phthalocyanine solutions have an appearance characteristic of ordinary metallic phthalocyanines. The position of the longwave absorption band depends little on the nature of the metal, while the quantum yield of fluorescence depends on it considerably, and amounts to 15% for Eu phthalocyanine, 4% for Gd phthalocyanine, and to less than 1% for Yb phthalocyanine. The temperature drop to -196°C merely narrows the fluorescence bands of rare-earth phthalocyanines. No lines of rare-earth ions appear in the spectra. Fluorescence is absent in emission spectra (in the 600 - 1,000 mμ region).

Card 1/2

The luminescence of rare-earth phthalocyanines

3/058/62/000/003/047/092
A061/A101

Conclusions: 1) The introduction of the paramagnetic ion into the molecule augments the probability of singlet-triplet transitions as a result of spin-orbital interaction; 2) the triplet state in rare-earth phthalocyanines is of very low energy ($< 10{,}000\ cm^{-1}$), and phosphorescence lies beyond the sensitivity range of the instrument. As for Eu-Gd phthalocyanines, the excitation level of the rare earth is higher than the first singlet excitation level of π-electrons of the phthalocyanine ring. Therefore, there are no rare-earth lines in the fluorescence spectrum due to transitions from the low singlet level. The low quantum yield of fluorescence is related to the radiationless singlet-triplet transitions, the probability of which is greater in Gd phthalocyanine because of the large magnetic moment in the Gd ion. As regards Yb phthalocyanine, the rare-earth level is lower than the excited singlet π-level, but is higher than the first triplet level. The extremely low quantum yield of Yb-phthalocyanine fluorescence ($< 1\%$) is ascribed by the authors to the energy transfer from the porphin ring to the Yb ion and the subsequent radiationless transitions to the triplet state of the molecule.

R. Personov

[Abstracter's note: Complete translation]

Card 2/2

GUREVICH, M.I.

Snow-gaging survey method. Meteor. i gidrol. no.4:82-84 '48.
(Snow) (MLRA 8:2)

"Intensity of Snow Melting and Water Liberation from Snow and the Methods of Their Determination", Trudy GGI, No 6 (20) 1948 (73-103)

SO: U-3 30, 11 Mar 1953

Meteorological Abst.
Vol. 4 No. 2
Feb. 1953
Aqueous Vapor and
Hydrometeors

4.2-218
Gurevich, M. I., Protsessy peremeshchenila talykh vod v snezhnom pokrove i vodootdacha iz snega. [Processes of transport of melt water through the snow cover and the water yield from snow.] *Leningrad. Gosudarstvennyi Gidrologicheskii Institut, Trudy*, No. 14(68):177–217, 1949. 13 figs., 6 tables, 12 refs., 11 eqs., append. DLC—Investigations were taken up for computing the runoff from melting snow. Due to water accumulation in the snow cover the water yield is different from the amount of melted snow. The runoff was measured from a small area (11 m²). A very detailed description of the observations is given and the results are summarized. The author distinguishes the accumulation phase and the runoff phase. The beginning of the second phase can be determined by $m_k = 0.0075\ m_0^2$; m_k—critical water content of the snow cover in mm, when further accumulation is impossible and runoff begins; m_0—the equivalent water conte t before the melting process. *Subject Headings:* 1. Snow melt 2. Run-off 3. Water content c snow.—*A.A.* 551.579.2

GUREVICH, M.I.

Forecast of summer and fall flowoff of rivers of plains on the basis of precipitation. Trudy GGI no.53:3-113 '56. (MLRA 10:8)
(Rivers) (Precipitation (Metereology))

POPOV, Yevgeniy Grigor'yevich; CHERVICH, M.I., otvetstvennyy redaktor; SHATILINA, M.K., redaktor; BRAYNINA, M.I., tekhnicheskiy redaktor

[Hydrological forecasts] Gidrologicheskie prognozy. Leningrad, Gidrometeor. izd-vo, 1957. 460 p. (MLRA 10:10)
(Hydrology) (Hydrometeorology)

GURKVICH, M.I.

GURKVICH, M.I.

Elementary inflow into a bed system and the genetic runoff formula.
Trudy GGI no.61:106-129 '57. (MIRA 10:12)
(Runoff)

GUREVICH, M.I.

Summer and fall forecasts of influx into reservoirs of hydroelectric power stations with an allowance for losses. Trudy GGI no.67:48-79 '58. (MIRA 12:5)

(Volga River--Hydrology)

GUREVICH, M.I., kand.geogr.nauk; POPOV, I.V., kand.geogr.nauk; SPENGLER, O.A., kand.geogr.nauk; URYVAYEV, V.A., otv.red.; SOKOLOVSKIY, D.L., prof., doktor tekhn.nauk, red.toma; CHEBOTAREV, A.I., dotsent, kand.tekhn.nauk, red.toma; KALININ, G.P., prof., doktor geogr.nauk, red.toma; GROSMAN, R.V., red.; SHATILINA, M.K., red.; BRAYNINA, M.I., tekhn.red.

[Transactions of the Third All-Union Hydrological Congress] Trudy III Vsesoiuznogo gidrologicheskogo s"ezda. Leningrad, Gidrometeor. izd-vo. Vol.2. [Section of runoff calculations and forecasts] Sektsiia raschetov i prognozov stoka. 1959.. 767 p. (MIRA 13:2)

1. Vsesoyuznyy gidrologicheskiy s"yezd. 3d, Leningrad, 1959. (Hydrology--Congresses) (Runoff)

GUREVICH, M. I.

Summer and fall streamflow prediction by hydrological and synoptic meteorological factors; based on a study of the Kama River. Trudy GGI no.75:14-62 '60. (MIRA 13:6)
(Kama River--Hydrology)

GUREVICH, M.I.

Local and general means of predicting the summer and fall runoff of rivers in the northwestern U.S.S.R. Trudy GGI no.97:138-203 '62. (MIRA 15:11)
(Runoff)

GUREVICH, M.I.

Use of L.A. Vitel's' synoptic-climatologic method for forecasting annual streamflow. Trudy GGI no.118:177-246 '65.
(MIRA 18:9)

GUREVICH, M.I. [Hurevych, M.I.]; SYROTINA, M.F. [Syrotina, M.F.]; POVZHITKOV, M.M. [Povzhytkov, M.M.]

Changes in some hemodynamics and hematologic indices in experimental disorders of the coronary blood circulation. Fiziol. zhur. [Ukr.] 10 no.2:171-176 Mr-Ap '64. (MIRA 18:7)

1. Laboratoriya fiziologii krovoobrashcheniya Instituta fiziologii im. A.A.Bogomol'tsa AN UkrSSR, Kiyev.

[illegible], M.I.]; KOZACHUK, Yu.S.; POVZHITKOV, M.M.

Some functional and morphological changes in experimental disorders of the coronary circulation. Fiziol. zhur. [Ukr.] 10 no.3:342-350 My-Je '64. (MIRA 18:9)

1. Laboratoriya fiziologii krovoobrashcheniya Instituta fiziologii im. A.A.Bogomol'tsa AN UkrSSR, Kiyev, i Kafedra patologicheskoy anatomii Kiyevskogo meditsinskogo instituta im. akad. A.A.Bogomol'tsa.

MAKARCHENKO, A.F., akademik, otv. red.; BOGACH, P.G., prof., red.; TROSHIKHIN, V.A., prof., red.; GUREVICH, M.I., doktor med. nauk, red.; KOLCHINSKAYA, A.Z., doktor biol. nauk, red.; PUTILIN, N.I., prof., red.; OLEYNIK, I.F., kand. biol. nauk, red.; PREOBRAZHENSKIY, N.N., kand. vet. nauk, red.; SNEZHIN, M.I., red.

[Regulation of vegetative functions] Reguliatsiia vegetativnykh funktsii. Kiev, Naukova dumka, 1965. 246 p. (MIRA 18:8)

1. Akademiya nauk URSR, Kiev. 2. AN Ukr.SSR (for Makarchenko). 3. Institut fiziologii im. A.A.Bogomol'tsa AN Ukr.SSR (for Putilin).

GURFVICH, M.I. [Hurevych, M.I.]; KVITNITSKIY, M.Ye. [Kvitnyts'kyi, M.IE.]; POVZHITKOV, M.M. [Povzhytkov, M.M.]

Spatial precardiac vectorcardiography in experimental myocardial infarct. Fiziol. zhur. [Ukr.] 11 no.1:52-57 Ja-F '65. (MIRA 18:7)

1. Laboratoriya fiziologii krovoobrashcheniy Instituta fiziologii im. A.A.Bogomol'tsa AN UkrSSR, Kiyev.

GUREVICH, M.I.; LOVEYKOV, M.M.; MANSUROV, I.

Characteristics of the basic hemodynamic indices in dogs, cats and rabbits. Fiziol. zhur. 51 no.8:974-977 Ag '65.

(MIRA 18:7)

1. Laboratoriya fiziologii krovoobrashcheniya Instituta fiziologii imeni Bogomol'tsa AN UkrSSR, Kiyev.

GUREVICH, M.I. [Hurevych, M.I.]; BERSHTEYN, S.A.; POVZHITKOV, M.M. [Povzhytkov, M.M.]

Correlation between tissue oxygen metabolism, hemodynamics and regional blood circulation. Fiziol.zhur. [Ukr.] 11 no.4:555-563 Jl-Ag '65. (MIRA 18:10)

1. Laboratoriya fiziologii krovoobrashcheniya Instituta fiziologii im. Bogomol'tsa AN UkrSSR, Kiyev.